

## ABSTRACT OF THE DISCLOSURE

Methods for using the length dispersion of an etalon to approximate desired resonant frequencies. A featured method comprises defining target resonant frequencies; and selecting an etalon having resonant frequencies that approximate the target resonant frequencies, wherein the selection of the etalon is made based at least in part in consideration of a length dispersion of the etalon. A second featured method comprises defining target resonant frequencies; determining a material dispersion for an etalon; and selecting a length dispersion for the etalon suitable to cooperate with the material dispersion to produce resonant frequencies which approximate the target resonant frequencies. Length dispersion selection may include, for example, selection of one or more of a refractive index step, a number of layers, and a layer thickness of one or both dielectric stacks of the etalon. A third featured method comprises determining a length dispersion of an etalon; determining an impact of the length dispersion of the etalon on a plurality of resonant frequencies of the etalon; comparing the plurality of resonant frequencies of the etalon with a plurality of target resonant frequencies; and selecting the etalon for application in an optical system based at least in part on a result of the comparison. The target resonant frequencies may be periodic or quasi-periodic.

20